

**PUBLIC HEALTH GUIDANCE FOR COMMUNITY-LEVEL PREPAREDNESS AND
RESPONSE TO SEVERE ACUTE RESPIRATORY SYNDROME (SARS)**

**SUPPLEMENT E: MANAGING INTERNATIONAL
TRAVEL-RELATED TRANSMISSION RISK**

Goals

- Prevent the introduction of SARS (and spread from an introduction) into the United States from SARS-affected areas.
- Prevent exportation of SARS from the United States if domestic transmission presents an increased risk of exportation.
- Reduce the risk of SARS among outbound travelers to SARS-affected areas.
- Prevent the transmission of SARS-CoV to passengers on a conveyance with a SARS patient, and evaluate and monitor other passengers to detect SARS-like illness and prevent further spread.

Key concepts

- SARS can spread rapidly on a global scale through international travel if control measures are not implemented.
- SARS-CoV transmission is usually localized and often limited to healthcare settings or households; therefore, the risk of SARS to travelers visiting an affected area is low unless they are exposed to these settings.
- Patients with SARS can transmit infection to other passengers on conveyances and should postpone travel until they are no longer infectious.
- Active follow-up of passengers on conveyances with SARS cases can help promptly identify infected passengers and prevent further spread.
- Transmission of SARS-CoV on conveyances can occur only if an undetected case boards. Therefore, the primary preventive strategy is to prevent symptomatic persons from traveling.

Priority activities

- Screen incoming travelers from SARS-affected areas for SARS, and provide guidance about monitoring their health and reporting illness.
- Provide guidance to outbound travelers about active SARS-affected areas and measures to reduce the risk of acquiring SARS-CoV infection during travel.
- If SARS-CoV transmission in the United States presents an increased risk of exporting SARS to other countries, then screen outbound travelers to prevent such exportation.
- Ensure the appropriate evaluation and management of SARS cases and potentially exposed passengers and crew members on conveyances.

I. Rationale and Goals

The rapid global spread of SARS is facilitated by international travel, as illustrated by the initial dissemination of the SARS outbreak from Hong Kong. Travelers visiting SARS-affected areas are potentially at risk of contracting SARS. However, even in settings with large outbreaks, SARS-CoV transmission is generally localized and often limited to specific settings (e.g., hospitals) or households of SARS patients. Consequently, the overall risk of SARS for outbound travelers who are not exposed to these settings is low. Nevertheless, nearly all U.S. SARS cases were in travelers to SARS-affected areas. Screening and evaluating passengers for SARS-like symptoms, educating them about SARS, and reporting illness should therefore decrease the risk of traveler-associated SARS. Because SARS-CoV can sometimes also be transmitted on conveyances (e.g., airplanes), it is also important to prevent spread from an ill passenger with a SARS-like illness and to identify and monitor contacts on the conveyance for SARS-like illness.

Because of the significant impact of travel on spread of communicable diseases such as SARS, legal authority exists at local, state, and federal levels to control the movement of persons with certain communicable diseases within and between jurisdictions. The types of measures that might be used to modify the risk of travel-related SARS range from distribution of health alert notices and arrival screening to quarantine of new arrivals and restrictions or prohibitions of nonessential travel. Although the states have authority for movement restrictions within states, federal laws govern movement between states or across international borders. Thus, airports and other ports of entry are sites of multiple overlapping jurisdictions where the interplay between various authorities must be clearly understood. (see Appendix E1)

The overall goals of activities to manage international travel-related SARS-CoV transmission risk are to:

- Prevent the introduction of SARS (and spread from an introduction) into the United States from SARS-affected areas.
- Prevent exportation of SARS from the United States if domestic transmission presents an increased risk of exportation.
- Reduce the risk of SARS among outbound travelers to SARS-affected areas.
- Prevent the spread of SARS-CoV on a conveyance with a SARS patient as well as spread on arrival.

II. Lessons Learned

During the 2003 global response, the control strategy for the United States included issuance of travel alerts and advisories (See box) and distribution of health alert notices to travelers arriving from areas with SARS to facilitate early identification of imported cases and response to reports of ill passengers. CDC staff met more than 11,000 direct and indirect flights from SARS areas and distributed more than 2.7 million health alert notices to arriving passengers as well as to persons arriving at 13 U.S. land border crossings near Toronto and departing passengers at the Toronto airport. Health alert

notices informed returning travelers of potential exposure to cases of SARS. They alerted travelers to the symptoms of SARS and advised them to promptly seek medical attention if symptoms develop. The notices also provided information and additional instructions for physicians (See Box).

CDC quarantine staff also met planes reporting an ill passenger to facilitate having the passenger evaluated for possible SARS, collecting locating information on the other passengers, and coordinating with federal and local authorities. If the ill passenger was determined to be a possible SARS case, then the locating information was forwarded to state and local health departments for contact-tracing activities.

Border and travel-related activities implemented in other countries more seriously affected by SARS included pre-departure temperature and symptom screening, arrival screening (asking passengers about travel history and possible exposure to SARS), "stop lists" (maintaining lists of persons who were SARS suspects or contacts to prevent them from traveling), and quarantine of all travelers returning from other SARS areas.

Lessons learned from this response informed the recommendations included in this Supplement. These lessons included the following:

- SARS can spread rapidly on a global scale through international travel if control measures are not implemented.
- SARS-CoV transmission is usually localized and often limited to healthcare settings and households; therefore, the risk of SARS to travelers visiting an affected area is low unless they are exposed to these settings.
- Patients with SARS can transmit infection to other passengers on conveyances and should postpone travel until they are no longer infectious.
- SARS-CoV transmission can occur within the close confines of conveyances. Resulting infections usually represent a failure to recognize symptomatic index cases and their high-risk contacts who should have been prevented from traveling.
- Active follow-up of passengers on conveyances with SARS cases can help promptly identify infected passengers and prevent further spread.

III. Activities Directed to Inbound Travelers

The nature and scope of activities related to travelers entering or in the United States will differ depending on the extent of SARS in the United States and in the country or countries from which the passenger has traveled (See Appendix E1). When SARS activity is absent or limited in the United States, then efforts will focus on promptly identifying cases imported from SARS-affected areas and preventing further spread from such cases. Guidelines have been developed for various groups who might be arriving from areas affected by SARS (Appendices E2, E3, E4). If active transmission of SARS is occurring in a U.S. city or area, then it will be important to prevent spread to other areas in the United States, possibly by restricting or even prohibiting travel into or from the affected area.

Objective: Prevent spread from SARS-CoV-infected travelers to the United States.

Basic Activities

- Inform incoming travelers about SARS, and provide guidance on monitoring their health and reporting illness to the appropriate authorities. This may be accomplished by use of:
 - o Video or public announcement on the conveyance just before arrival
 - o Distribution of health alert notices upon arrival (Appendix E5)
 - o Posters or public announcements in airports
- Screen travelers for symptoms of SARS and recent high-risk exposures to SARS (e.g., SARS patients or high-risk settings) through a self-administered questionnaire.
- Evaluate travelers who report symptoms of SARS during travel (see below -- Section V: Activities Related to SARS on Conveyances).
- Quarantine inspectors at the quarantine stations and other public health workers in locations near other ports of entry will respond to reports of ill passengers on airplanes or other conveyances arriving from areas with SARS.

Enhanced Activities

- If the level of transmission in another country is high, incoming passengers from this area might require enhanced screening and evaluation through:
 - o Visual inspection of all travelers as they disembark
 - o Temperature monitoring
- Quarantine inspectors at the quarantine stations and other public health workers in locations near other ports of entry will meet all airplanes or other conveyances arriving from areas with SARS to question crew members about any ill passengers and to visually inspect passengers upon disembarkation.
- If the level of SARS-CoV transmission in an area in the United States is sufficiently high to present a substantial risk to travelers, then non-essential travel to this area may be restricted, stopped, or subjected to increased surveillance measures.
- Other activities that may be considered but whose effectiveness is unclear (especially given the resources required for implementation) include:
 - o Ten-day quarantine of all passengers arriving from SARS areas
 - o Collection of locating information on all arriving passengers

IV. Activities Directed to Outbound Travelers

Activities related to outbound travelers will vary based on the extent of SARS-CoV transmission in the United States and at the destination (Appendix E1). If there is little SARS activity in the United States, the goal is to inform travelers about the risk of SARS and appropriate measures to reduce the risk of acquiring SARS during travel (Appendix E6). If there is extensive SARS-CoV transmission in the United States, then preventing the exportation of SARS will be an added objective.

Objective: Minimize outbound travelers' risk for exposure to SARS during travel or the risk of spreading SARS-CoV to other localities.

Basic Activities

- Issue travel alerts and advisories (see Box).
- Provide educational materials to travelers on measures to reduce the risk of SARS.

Enhanced Activities

- Prohibit travel (e.g., cancel flights) to locations with extensive SARS-CoV transmission (see below – Section VII: Roles and Responsibilities).
- If the level of SARS-CoV transmission in the United States presents an increased risk of exportation, than some or all of the following might be implemented:
 - Pre-departure screening (e.g., temperature monitoring, visual screening) of outbound travelers.
 - Health certifications, i.e., requiring travelers to have a medical examination before departure, with a doctor's statement that they are free of SARS symptoms and have not had close contact to a SARS patient in the past 10 days.
 - Stop lists, i.e., maintaining lists of SARS cases and close contacts at ports of departure against which travelers' names can be checked to prevent them from traveling.

Travel Alerts and Travel Advisories

- ◆ Travel alerts and advisories are notifications of an outbreak of disease occurring in a geographic area. A **travel alert**, a lower-level notice, provides information about the disease outbreak and informs travelers how to reduce their risk of acquiring the infection. An alert does not include a recommendation against nonessential travel to the area.
- ◆ When the health risk for travelers is thought to be high, a **travel advisory** recommending against nonessential travel to the area is issued. Travel advisories are intended to reduce the number of travelers to high-risk areas and the risk for spreading disease to other areas.
- ◆ CDC issues travel alerts and advisories based on evidence of transmission, spread of disease, and effectiveness of local prevention efforts. The quality of local disease surveillance and the accessibility of medical care are additional considerations.

V. SARS on Conveyances

A SARS patient on a conveyance presents a risk of transmission to other passengers and to non-passengers on arrival and a risk of further spread from other passengers who become infected.

Objective: Protect co-passengers and crew members from SARS-CoV-infected passengers and from transmission associated with passengers exposed to the index case.

Activities

Management of a potential SARS patient on a conveyance

- Isolate the potential SARS patient as completely as possible from other passengers and the crew. The ill passenger should wear a surgical mask
- Ensure that persons caring for the ill passenger follow infection control measures recommended for cases of SARS (See Supplement C).
- If possible, designate a separate toilet for the exclusive use of the ill passenger.
- Notify the airport or land port at destination so that health authorities are prepared to manage the ill passenger and evaluate other passengers.

Management on arrival

- Separate the ill passenger from exposed, well co-passengers at the soonest moment both in transit and after arrival.
- On arrival, the ill passenger should be placed in isolation and assessed by port health authorities.
- Other passengers should be assessed for illness and types of exposures to the ill passenger and other potential SARS exposures. EMS and local emergency departments can perform these evaluations using appropriate precautions. It is preferable that protocols and memoranda of understanding with ambulance services and hospitals are pre-established.

Management of passengers and crew on the same conveyance

- Locating information -- Collect locating information for all passengers and crew. This information should be obtained directly from passengers, if possible. If a potential SARS case on a conveyance is not detected until after arrival, this information can be obtained from:
 - Passenger manifests
 - Staff lists
 - Customs forms
- Monitoring -- All passengers on board should be informed about SARS and advised to seek immediate medical attention if symptoms develop within 10 days of the flight. Close contacts of the case need particular attention.
- Quarantine --In some circumstances (e.g., if the ill passenger had contact with a laboratory-confirmed SARS case and had significant

respiratory symptoms during a prolonged flight), temporary detention of the plane and arrangement for monitoring and quarantine of all passengers may be warranted. Home quarantine may be used for persons who live in the port of arrival, whereas quarantine in a designated facility should be arranged for the others.

VI. De-escalation of Control Measures

Objective 1: Downgrade or remove travel alerts and advisories as appropriate.

Activities

- CDC will downgrade a travel advisory to a travel alert when there is:
 - Adequate and regularly updated reporting of surveillance data from the area
 - No evidence of ongoing community transmission for 20 days (two incubation periods) after the onset of symptoms for the last case without an epidemiologic link, as reported by public health authorities.
- CDC will remove a travel alert when there is:
 - Adequate surveillance data from the area
 - No evidence of new cases for 30 days (three incubation periods) after the date of onset of symptoms for the last case, as reported by public health authorities.
 - Limited or no recent instances of exported cases from the area. An exported case is defined as a case that meets the case definition for a probable case and that has one of the following characteristics: 1) laboratory confirmation of SARS-CoV, 2) close contact within 10 days of onset of symptoms with a person known or suspected to have SARS, or 3) exposure in a setting during a time of known or suspected SARS-CoV transmission.

Objective 2: Reduce measures used for inbound travelers as appropriate.

Activities

- For all arriving passengers from areas with SARS activity:
 - Continue general education for passengers from a particular area until the travel alert has been lifted (30 days after the onset of symptoms for the last case in that area). Because travel patterns may make it difficult to determine passengers' points of origin, it may be more practical to continue general education for a longer duration, depending on where SARS activity is occurring.
 - Continue screening passengers, but consider discontinuing these activities when the area of origin is downgraded from a travel advisory to a travel alert.
- For ill passengers arriving from areas with SARS activity:
 - Continue passive monitoring the travel alert for that area has been lifted (30 days after the onset of symptoms for the last case from that area). Because travel patterns may make it difficult to

determine passengers' point of origin, it may be more practical to continue general education for a longer duration, depending on where SARS activity is occurring.

- o Continue active monitoring, but consider discontinuing these activities when the area of origin is downgraded from a travel advisory to a travel alert.

Objective 3: Reduce other measures used for outbound travelers as appropriate.

Activities

- Continue pre-departure fever and symptom screening for passengers departing from areas with ongoing community transmission, but consider discontinuing these activities 20 days after the onset of symptoms for the last unlinked case.
- Continue stop lists until there are no longer any cases under isolation or contacts under quarantine.

Objective 4: Reduce measures for management of SARS on conveyances as appropriate.

Activities

- Continue meeting flights with an ill passenger on board who has SARS-like symptoms. If the passenger is seriously ill, conduct evaluation and follow-up as per the usual protocols.
- Continue to collect locating information as long as the passenger has symptoms compatible with SARS and has traveled from an area with ongoing community transmission (under a travel advisory). For areas that have been downgraded to a travel alert, locating information may not be needed unless the ill passenger had contact with a known source or had another strong epidemiologic link.
- The need for monitoring and quarantine for contacts of a passenger from an area on travel alert will be determined after the ill passenger has been fully evaluated.

VII. Roles and Responsibilities

Because jurisdictions and authorities at airports and other ports of entry overlap, it is important that local, state and federal staff establish protocols and outline roles and responsibilities in advance of a public health emergency.

Currently, eight of the international airports have permanent federal quarantine staff (http://www.cdc.gov/ncidod/dq/quarantine_stations.htm). These federal quarantine staff have primary responsibility for handling the quarantine-related travel activities described above. State and local public health staff may provide assistance depending on the workload. At other airports and ports, local and state public health staff or other deployed persons will have primary responsibility, under the coordination of regional quarantine personnel. The local health jurisdiction will have primary

responsibility for follow-up and management of passengers who may have been exposed to a SARS case on a conveyance.

Most local or state jurisdictions have adequate quarantine authority to require a person with possible SARS or their contacts to be detained for evaluation. Federal authority can be used if necessary. Public health officials should work closely with local, state, and federal law enforcement to enforce quarantine authority for persons who do not cooperate voluntarily.

VIII. Preparedness Planning

A. Legal authority for restricting movement

- Public health officials should work closely with their legal counterparts to ensure that the legal authority for movement restrictions at the local, state, and federal levels is known and understood and to establish boundaries of authority and processes to address multi-jurisdictional issues (See Supplement A).
- Develop plans for making decisions on movement restrictions, such as: 1) requirements for pre-departure screening, 2) requirements for arrival screening and/or quarantine, 3) travel prohibitions on cases and contacts, 4) restrictions related to use of mass transit systems, 5) restriction or prohibition of non-essential travel, and 6) closure of national or state borders.
- Work closely with local, state, and federal law enforcement to develop plans for enforcement of these restrictions.

B. Engagement of key partners

- Preparedness planning should begin by identifying key partners representing: 1) law enforcement (local, state, federal), 2) legal community, 3) emergency medical services (for evaluation of ill arriving passengers and transportation to the hospital), 4) hospital personnel, 5) transportation industry personnel, and 6) other emergency management personnel. The partners should be involved in the planning process.
- Develop plans for the training, mobilization, and deployment of pertinent public health and other staff.
- Conduct training programs and drills.
- Provide fit-testing and training in use of PPE for persons at risk for exposure to possible SARS cases.

C. Protocols for management of ill arriving passengers

Public health officials and quarantine staff, in collaboration with legal and law enforcement authorities, should develop protocols for the management of ill arriving passengers at ports of entry, including provisions for:

- Meeting flights with a reported ill passenger
- Separation of the ill passenger during assessment
- Assessment of and referral for evaluation and care for the ill passenger

- Transportation of the ill passenger to a designated healthcare facility
- Collection of locating information on other passengers and crew
- Collection of the flight manifest, customs declarations, and other information for contact tracing
- Identification of any other ill passengers and their separation from well passengers
- Quarantine of contacts if necessary, including transportation to a quarantine facility
- Enforcement for uncooperative ill passengers or contacts

D. Memoranda of understanding (MOU) with healthcare facilities, transport services, and physicians

- Public health officials should work with federal quarantine staff to develop MOUs with hospitals near ports of entry; these facilities must be equipped to isolate, evaluate, and manage possible SARS patients (see Supplement C).
- Agreements should include arrangements with a designated emergency medical service for on-site assessment of ill passengers and transportation to a hospital for evaluation.

E. Designation of quarantine facility

Public health officials should identify a facility for travelers who are designated as contacts and who require quarantine but cannot be quarantined at home.

F. Roles and responsibilities

Roles and responsibilities should be outlined for the various partners and the various levels of jurisdiction (local, state, and federal) for each component of the response.

For additional information and material on prevention of SARS travel-related risks,
see <http://www.cdc.gov/ncidod/sars/travel.htm>.

Appendices for Supplement E**Appendix E1**

Travel-Related SARS Response Matrices

Appendix E2

Interim Guidance for Institutions or Organizations Hosting Persons Arriving
from

Areas with Severe Acute Respiratory Syndrome (SARS)

Appendix E3

Interim Guidelines for Businesses and Other Organizations with Employees
Returning

to the United States from Areas with SARS

Appendix E4

Guidelines for International Adoptees and Their Families

Appendix E5

Health Alert Notice for International Travelers Arriving in the United States
from

Areas with SARS

Appendix E6

Interim Guidelines and Recommendations: Prevention, Identification and
Management of Suspect & Probable Cases of SARS on Cruise Ships

Appendix E1

Travel-Related SARS Response Matrices

Matrix 1: Suggested Activities for Inbound Travelers

Level of SARS activity	Suggested actions, by situation in originating location
No known SARS activity worldwide or known SARS activity but only imported cases	<p><i>Imported cases; limited transmission in location of origin</i></p> <ul style="list-style-type: none"> • Distribute health alert notices to all arrivals • Passive monitoring of all arriving passengers for development of symptoms. • Persons who develop symptoms should self-report before presentation to provider. • Follow quarantine officer protocol for arriving ill passengers. <ul style="list-style-type: none"> o Follow procedures for ill contacts. o Collect 30-day contact information for passengers on conveyances with ill passenger. • Consider enhanced surveillance for ill passengers. <p><i>Extensive transmission/effective control measures</i></p> <ul style="list-style-type: none"> • Active surveillance for ill passengers. • Symptom screening for all arriving passengers. • Medical evaluation for all passengers with symptoms. • Consider 10-day quarantine for asymptomatic arrivals. • Collect contact information on all arriving passengers. <p><i>Extensive transmission/ineffective control measures</i></p> <ul style="list-style-type: none"> • Prohibit all non-essential arrivals. • Medical screening upon arrival. • Mandatory 10-day quarantine for all asymptomatic arrivals. • Collect contact information on all arriving passengers.
SARS activity in U.S. and community, with extensive transmission and effective control measures	<p><i>Imported cases; limited transmission in location of origin</i></p> <ul style="list-style-type: none"> • Minimize non-essential travel. • Consider restricting travel within jurisdictions. • Arrivals should follow procedures based on situation in location of origin. <p><i>Extensive transmission/effective control measures</i></p> <ul style="list-style-type: none"> • Minimize non-essential travel. • Consider restricting travel within jurisdictions. • Arrivals should follow procedures based on situation

	<p>in</p> <ul style="list-style-type: none"> • location of origin. <p><i>Extensive transmission/ineffective control measures</i></p> <ul style="list-style-type: none"> • Prohibit all non-essential arrivals. • Medical screening upon arrival. • Mandatory 10-day quarantine for all asymptomatic arrivals. • Collect contact information on all arriving passengers.
SARS activity in U.S. and community, with extensive transmission and ineffective control measures	<p><i>Imported cases; limited transmission in location of origin</i></p> <ul style="list-style-type: none"> • Prohibit all non-essential arrivals. • Arrivals should follow procedures based on situation in location of origin. <p><i>Extensive transmission/effective control measures</i></p> <ul style="list-style-type: none"> • Prohibit all non-essential arrivals. • Arrivals should follow procedures based on situation in location of origin. <p><i>Extensive transmission/ineffective control measures</i></p> <ul style="list-style-type: none"> • Prohibit all non-essential arrivals. • Medical screening upon arrival. • Mandatory 10-day quarantine for all asymptomatic persons. • Collect contact information on all arriving passengers.

Matrix 2: Suggested Activities for Outbound Travelers

Level of SARS activity	Suggested actions
No known SARS activity worldwide	<ul style="list-style-type: none"> • No special activities
SARS activity in U.S. and community, but only imported cases	<ul style="list-style-type: none"> • Issue travel alerts for countries with limited transmission. • Issue travel advisories for countries with extensive transmission. • Prohibit non-essential travel to countries where control measures are deemed inadequate. • Consider: <ul style="list-style-type: none"> o Medical screening at all exit points o Travel prohibition for all persons meeting case definition with epidemiologic link to transmission setting o Medical assessment for all with signs/symptoms without epidemiologic link • Prohibit travel for persons under quarantine.
SARS activity in U.S. and community, with extensive transmission and effective control measures	<ul style="list-style-type: none"> • Issue international travel alerts/advisories/prohibitions as above. • Issue alerts/advisories/prohibitions for domestic destinations based on setting and transmission pattern. • Initiate medical screening of departing passengers at all exit points. • Prohibit travel for all persons meeting case definition. • Prohibit travel for all persons under quarantine. • Require health certificate for exit.
SARS activity in U.S. and community, with extensive transmission and ineffective control measures	<ul style="list-style-type: none"> • Issue international travel alerts/advisories/prohibitions as above. • Issue domestic alerts/advisories/prohibitions as above. • Prohibit nonessential outbound travel. • Require health certificate for essential travel. • Implement medical screening at all exit points. • Prohibit travel for all persons meeting case definition. • Prohibit travel for all persons under quarantine.